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TITLE : ARRAY WAVEGUIDE GRATING ELEMENT

$$\Delta n_s = -\frac{n_{s(TE)}\lambda_c \frac{d\Delta n_{eq}}{d\lambda}}{N_{c(TE)}}$$

ここで、

$\Delta n_{eq}/d\lambda$は、アレイ導波路を構成する導波路が有する等価屈折率の偏波による差（$\Delta n_{eq} \equiv n_{eq(TE)} - n_{eq(TM)}$）の波長分散であり、

λ_cは、中心ポートの出力波長であり、

$n_{s(TE)}$は、スラブ導波路のＴＥモードに対する等価屈折率であり、

$$N_{c(TE)} \equiv n_{eq(TE)} - \lambda \frac{d n_{eq(TE)}}{d\lambda}$$

である。

ABSTRACT : PROBLEM TO BE SOLVED: To provide an array waveguide grating element independent of polarization in an extensive wavelength range by setting the difference in the polarization dependency of the equivalent refractive index of a slab waveguide by the specified formula.

SOLUTION: An array waveguide grating element comprises an array waveguide circuit having a first slab waveguide to which one or more input waveguides are connected, and a second slab waveguide to which one or more output waveguides are connected on each end of an array waveguide. In order to eliminate the wavelength dispersion of the polarization dependency of the array waveguide, the difference in the equivalent refractive index between the TE mode and the TM mode of a slab waveguide is set by a formula. The light incident from the input waveguide is diffracted by the first slab waveguide, and branched into the array waveguide. The light outgoing to the second slab waveguide from the array waveguide is diffracted, and interfered with each other, and converged on a second end lace of the second slab waveguide according to the wavelength. The polarization dependency of the equivalent refractive index is increased to more effectively eliminate the wavelength dispersion.